MANAGEMENT DISCUSSION AND ANALYSIS

JSW Energy is amongst India's leading private sector power companies and has grown steadily and strongly throughout the years.

ECONOMIC OVERVIEW

Global Economy

Since the beginning of CY2020, global economic activity has been losing momentum characterised by elevated US-China trade tensions and moderation of demand in key markets. Further, crude oil prices have remained volatile, reflecting evolving demand-supply conditions and geopolitical concerns.

In October 2019, IMF described that the global economy was entering into a phase of 'synchronised slowdown', with escalating downside risks that could further derail growth.[1] However, in its January 2020 update, global growth was projected to increase modestly from 2.9% in 2019 to 3.3% in 2020 and 3.4% in 2021.

Overall, the risks to the global economy remain elevated, despite positive news on trade and diminishing concerns of a no-deal Brexit. The pickup in global growth for CY2020 continue to be highly uncertain, as it depends upon improving growth projections for stressed economies such as Argentina, Iran, and Turkey; and underperforming emerging and developing economies such as Brazil, India, and Mexico. Further, by the latter part of January 2020, the world started to witness the beginnings of Covid-19 related disruption on an unprecedented global scale, throwing all earlier projections completely off.

The arrival of Covid-19 and its impact

Initially contained within China, the Covid-19 outbreak started to take root at the beginning of December 2019. Gradually, through late December 2019 and January 2020, the outbreak spread more widely across the globe, shifting its status from an epidemic to pandemic. Over the next few months, despite several efforts by the World Health Organisation and multiple governments, the virus has brought considerable human sickness and mortality. The various isolating measures to control the spread of the pandemic has resulted in significant economic disruptions across the world from quarantines, lockdowns, restrictions on all forms of travel, factory closures and a sharp decline in most economic activities.

Global growth, already cooling over the past two years to a subdued level, has been dealt with a nasty blow by the Covid-19 pandemic. By trying to keep the sharp rise in new infections in check, economic impairment is mounting to unprecedented levels across most countries. This has pushed the world economy into a recession, with damaging consequences much worse than what was witnessed during the 2008 Global Financial crisis.

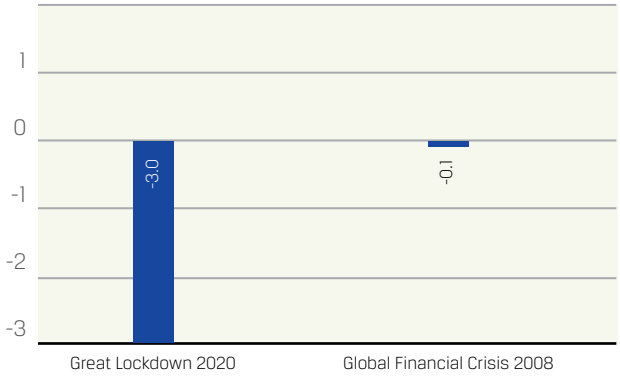
The economic recovery from this pandemic will largely depend on the actions and policies undertaken to deal with this crisis. If policies ensure that workers do not lose their jobs, renters and homeowners are not evicted, companies avoid bankruptcy, and business and trade networks are preserved, the economic recovery is likely to occur sooner.

[1] IMF – WEO – October 2019

Under the assumption that the pandemic and required containment peaks in the June quarter for most countries in the World, and recedes in the second half of 2020, it is projected by the IMF[2] that the global growth in 2020 will fall to negative 3%. This massive revision of -6.3% over a very short period marks Covid-19 pandemic as the cause of the worst recession seen since the Great Depression, and far worse than the Global Financial Crisis.[2]

The World Economy will experience the worst recession since the Great Depression

Real GDP Growth, YoY percent change



Source: IMF, World Economic outlook - April 2020

As different governments collectively pool in more than $8 trillion[2] to fight the coronavirus pandemic, a further widening in the gap between rich and poor countries threatens to exacerbate the global economy's pain. Thus while wealthy nations have delved into their deep pockets to cushion the blow, like in the case of Germany and Italy, each having allocated more than 30% of GDP to deal with the crisis, infusions by emerging and developing economies pale in comparison. Nevertheless, if all these policy actions around the world are eventually effective in preventing widespread business bankruptcies, extended job losses, and system-wide financial strains, it is projected that the global growth in 2021 could potentially rebound once again.

Indian Economy

India has been amongst the fastest-growing economies in the world over the past few years, lifting millions out of poverty in the process. As per OECD Economic Outlook - 2019, India was set for a modest recovery after a loss of momentum, as reforms to simplify taxation, lighten business regulations and upgrade infrastructure started to bear fruit. Further, reforms to modernise the economy were needed to drive the creation of high-quality jobs, as well as measures to improve public services and welfare. The OECD outlook had projected that India's GDP growth would recover to 6.2% in 2020 and 6.4% in 2021 after dipping to 5.8% in 2019, following several years of robust growth.[3]

Pandemic Impact

The economic impact of the Covid-19 pandemic on India has been extremely disruptive. The World Bank and credit rating agencies have downgraded India's growth for the fiscal year 2021 to the lowest level India has seen in three decades since India's economic liberalisation in the 1990s. During the lockdown imposed to deal with the pandemic, an estimated 140 million people in India have lost employment with unemployment levels rising from 7.2% in January 2020 to 23.5% in May 2020.[4]

However, the IMF projects that post Covid-19, India's GDP growth could recover to 1.9% for CY2020 and 7.4% for CY2021, the highest among G-20 nations.[5] The rebound in CY2020 and CY2021 depends critically on the pandemic fading in the second half of 2020, allowing containment efforts to scale back and restoring consumer and investor confidence gradually.

In May 2020, the Indian Government announced a ₹20 trillion stimulus package to help the Indian economy recover from the stagnant economic conditions caused by the lockdown. At as much as 10% of Indian GDP, this package focuses on land, labour, liquidity and legal reforms to stimulate cottage industries, MSMEs, the working class, middle class and industries. This package is also focused on empowering the poor, labourers, and migrant workers, both in the organised and unorganised sectors. This is a bold step taken by the Government to make India more self-reliant, and increase the economy's ability to tackle any unforeseen crisis more efficiently in the future.[6]

Although markets worldwide were in for a rude shock in March 2020, after global crude oil prices fell almost 30% amidst Covid-19 uncertainty. India is expected to be a significant gainer from the oil prices slump. As India imports 85% of its oil requirement, these low oil prices would translate into a lower oil import bill, thereby easing the current account deficit and lowering inflation. According to ICRA, while the Indian Rupee is expected to come under pressure, the overall oil import bill should fall as well, thereby softening the currency impact.

Furthermore, global manufacturers have initiated talks with Indian firms to explore the possibility of shifting a part of their supply chains from China, as they seek to reduce their concentration of supplies from China following the Covid-19 outbreak. Many multinationals suffered widespread disruptions to their businesses when the Chinese authorities enforced strict lockdown measures in Wuhan and other parts of China to contain the pandemic. The selection of India as a production hub and as a strategic replacement to China could further help stimulate the Indian economy, thereby leading to a quicker than anticipated recovery.

The IMF in its World Economic Outlook of April 2020 projects that post Covid-19, India's GDP growth could recover to 1.9% for CY2020 and 7.4% for CY2021, the highest among G-20 nations.

[2,5] IMF - WEO - April 2020
[3] OECD Economic Outlook - 2019
[4] CMIE
[6] Economic Times

INDUSTRY REVIEW

Coal Consumption in India

The total coal consumption in India stood at ~972 million tonnes (MnT) in FY2019-20, with a growth rate of 0.3% on a Y-o-Y basis. Of the total coal consumption, ~729 MnT came through indigenous production, with the balance being imported. India's domestic coal consumption is largely met through Coal India Limited (CIL) and Singareni Collieries Company Limited (SCCL), India's largest coal miners, and off-take from these two stood at ~644 MnT in FY2019-20, 5% lower than the previous year, with ~80% being consumed by the power sector. By FY2022-23, coal consumption is expected to reach 1,076 MnT with domestic production touching 931 MnT, driven largely by an increase in production by CIL, commissioning of captive coal blocks and rising power needs of India.[7]

Indian Power Sector

With a population of almost 1.4 billion, India is one of the world's fastest-growing major economies and is vital for the future growth of global energy and power markets. The Indian Power sector has witnessed an eventful decade with a significant ramp-up in the power generation capacity leading to near-universal household electrification in India. However, it has also faced multiple headwinds such as fuel availability, lack of PPAs, delays in policy implementation and poor financial health of DISCOMs.

With coal in abundant supply, coal continues to be the single largest source of power generation in India with coal-fired thermal power plants being the backbone of the Indian Power sector. While new coal-based power plants are more efficient, with higher flexibility and lower emissions, old coal-based power plants are highly inefficient, requiring expensive retrofits to comply with increasingly stringent environmental standards.

Over the years, India's electricity security has made significant progress by creating a single national power system, and considerable investments have been made in thermal and renewable capacity. Additionally, India has taken positive strides towards meeting the United Nations (UN) Sustainable Development Goals, especially Goal 7, of ensuring that everyone has access to affordable and clean energy. Towards this goal, the Government of India has taken significant steps in increasing access to electricity across the nation and has also successfully implemented a range of energy market reforms to support renewable electricity generation, both in solar and wind energy.

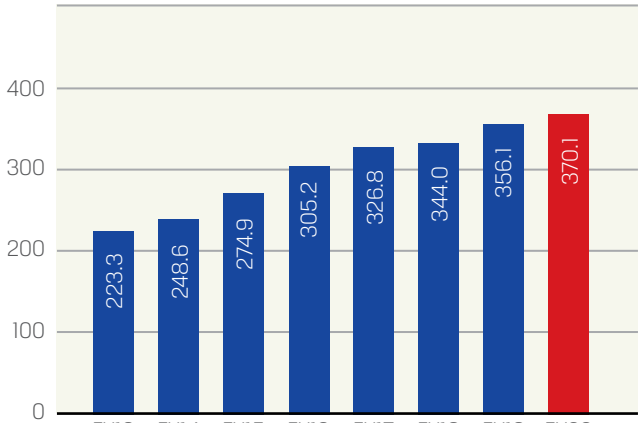
With a population of almost 1.4 billion, India is one of the world's fastest-growing major economies and is vital for the future growth of global energy and power markets.

According to the IEA report, demand for power has seen an upward trend in recent years. Moreover, it is expected that it will continue on the same trajectory due to economic development, rapid urbanisation, growing appliance ownership, and thrust towards rural electrification. The Government continues to focus on increasing the share from sustainable renewable energy sources to reduce the dependency on traditional fossil-fuel-based energy sources.

Power Capacity & Generation

The installed power generation capacity in India as on FY2019-20 stood at 370.1 GW, marking an increase of 14 GW YoY basis. Continuing the previous year's trend, the capacity addition was led by Renewable Energy Segment (RES), which added ~9.4 GW capacity. The net capacity addition in the Thermal segment witnessed a marginal pickup for FY2019-20 at 4.3 GW compared to 3.4 GW in FY2018-19.

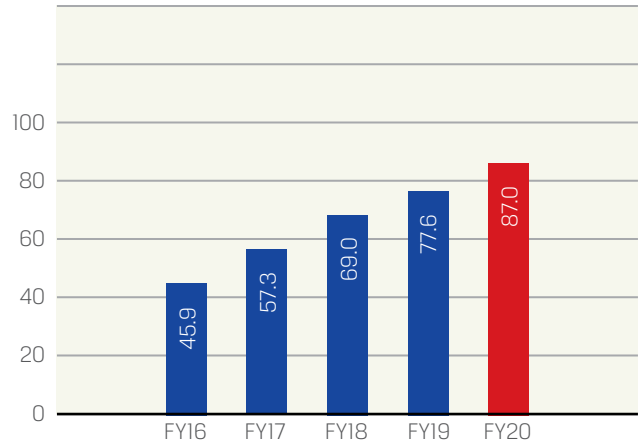
Total Installed Capacity (in GW)
CAGR 7.5% (FY 2012-13 to FY 2019-20)



Source: CEA

Within the RES segment, solar energy contributed ~6.5 GW of the capacity addition, wind contributed ~2.1 GW with others filling the rest. RES installed capacity has seen a big leap in the past few years, with a CAGR of ~17.3% from FY2015-16 to FY2019-20.

RES Installed Capacity (in GW)



Source: CEA

[7] CRISIL

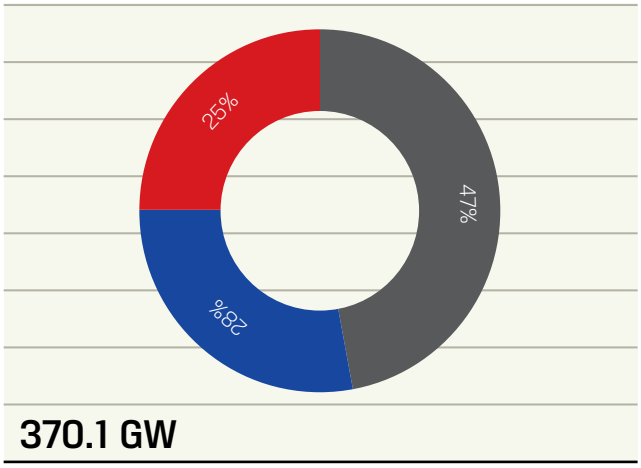
All-India Thermal plant load factor (PLF) for FY2019-20 stood at 56.0%, down from 61.1% in FY2018-19, primarily due to a decline in State and Central PLFs. Thermal PLF for the Central sector stood at 64.2% compared to 72.6% in FY2018-19. Thermal PLF for the State sector stood at 50.2% compared to 57.8% in FY2018-19. Thermal PLF for the Private sector declined marginally YoY to 54.3% from 55.0% a year ago.[8]

Installed Capacity (in GW) as on March 31, 2020

	Thermal	Nuclear	Hydro	RES	Total
State	74.0	0.0	27.0	2.4	103.3
Private	86.9	0.0	3.4	83.0	173.3
Central	69.7	6.8	15.3	1.6	93.5
Total	**230.6**	**6.8**	**45.7**	**87.0**	**370.1**

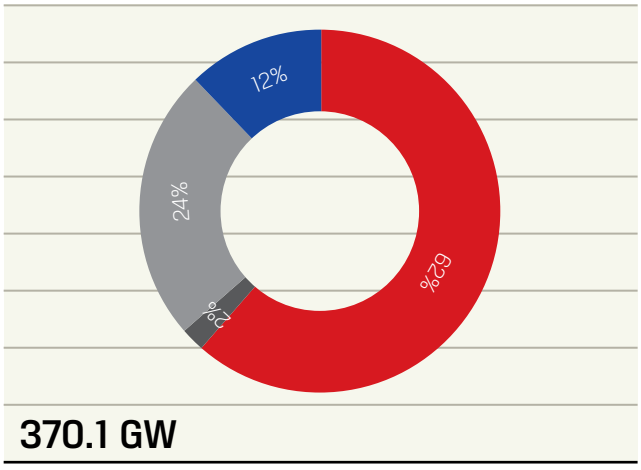
Source: CEA

Sector-wise Installed Capacity (%)
(as on 31st March, 2020)



Source: CEA

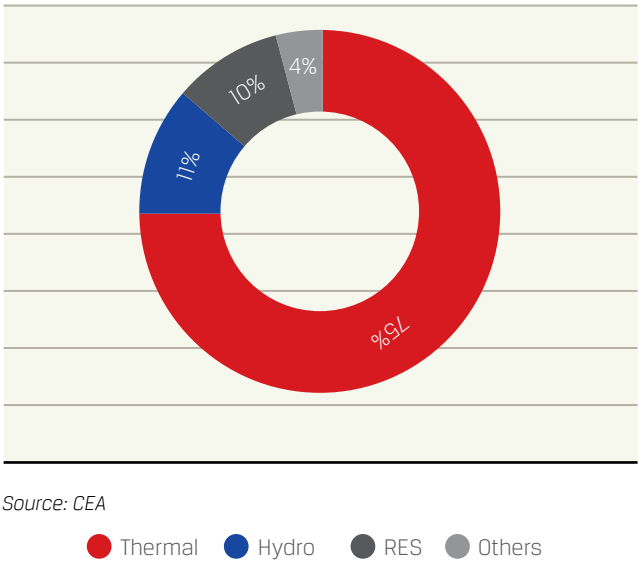
Mode-wise Installed Capacity (%)
(as on 31st March 2020)



Source: CEA

All-India power generation for FY2019-20 stood at ~1,389 billion units (BUs), up 1.0% from ~1,376 BUs in FY2018-19. Thermal power generation stood lower by 2.8% YoY at ~1,043 BUs compared to ~1,072 BUs in FY2018-19. The share of power generation of the Thermal segment came down from ~78% in FY2018-19 to ~75% due to aggressive capacity addition in the RES segment. Hydropower generation increased significantly by 15.7% YoY to ~156 BUs from ~135 BUs in previous fiscal due to better water availability, especially in the Northern region. RES power generation increased 9.1% YoY to ~138 BUs from ~127 BUs in FY2018-19, led by robust capacity additions.[9]

Mode-wise Gross Generation
(FY2019-20)



Source: CEA

Power Demand

In FY2019-20, the demand for power in India grew by 1.3% to 1,291 BUs compared to 1,275 BUs in FY2018-19. The subdued power demand growth was due to the twin headwinds of overall weakness in economic activity and Covid-19 related impact towards the end of the year. Peak power demand touched an all-time high of 184 GW in FY2019-20, an increase of 3.8% YoY. Chhattisgarh, Himachal Pradesh, Kerala, Bihar, and Uttar Pradesh were the main drivers for power demand while Gujarat, Maharashtra and Tamil Nadu witnessed fall in demand on a YoY basis. The Northern region saw the highest increase in demand by 3.2% YoY to ~395 BUs, followed by the Southern region where demand rose by 1.5% on a YoY to ~346 BUs. The Eastern region witnessed a modest growth of 0.3% on a YoY basis to ~146 BUs, while the North Eastern and Western regions saw a fall in demand by 0.4% to ~389 BUs and 0.6% to ~17 BUs, respectively.[10]

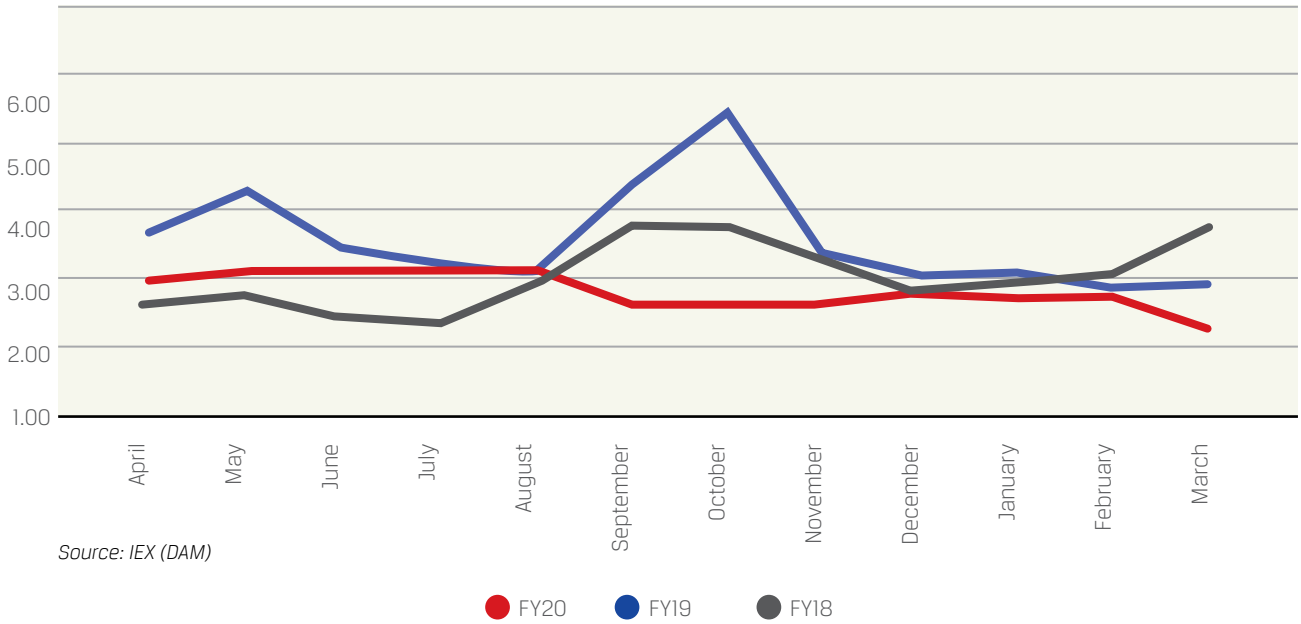
Indian Merchant Power Market

The volume of power traded at the Indian Energy Exchange (IEX) witnessed a flattish trend in FY2019-20. Volume on IEX for FY2019-20 stood at ~49 BUs compared to ~50 BUs in FY2018-19. The average merchant tariff fell ~22% YoY to ₹3.01 per kWh from ₹3.85 per kWh in previous fiscal.[11]

[8,9,10] CEA

[11] IEX - (DAM)

Average Monthly Tariff Trends (₹/kWh)



Source: IEX (DAM)

Renewable Energy

Over the past few years, India has made substantial progress in the renewable energy sector on the back of conducive policy environment, government support, steady inflow of capital, introduction of latest technologies and several fiscal policy incentives. In 2015, the Government outlined its intent to move to a lower-emissions based power sector by announcing an ambitious target of 175 GW of renewable capacity by 2022 and 450 GW of renewable capacity by 2030.[12] Also, the Government has been proactive to attract foreign investment in this sector and allows 100% FDI for renewable energy projects to facilitate easy transfer of capital and technology.[13] Consequently, there has been significant renewable capacity addition leading to a higher proportion of renewables in the overall energy mix in India.

While India has been rightly focusing on renewable energy to reduce the reliance on traditional fossil fuel sources, an efficient and robust transmission and gridline network are essential to support the scale-up in the renewable energy capacity from an accessibility and reliability point of view. Hence, a key prerequisite to India's renewable energy ambitions is the need to concurrently build-out and modernise India's national transmission grid. To expand the transmission grid infrastructure, various policies have been announced, and initiatives are undertaken, including the Green Energy Corridor where good progress has been made with the financial support of the Central Government.

To overcome land acquisition and connectivity issues, solar parks have been designed as a crucial tool for ensuring continued solar PV deployment. While these have experienced some delays compared to the original schedules, their smooth implementation will be critical for a ramp-up in solar power capacity in India.

Further, renewable energy is intermittent and requires balancing from other sources like battery or pumped hydro storage as well as proactive demand response management. Further planning and support in these areas would be critical for better integration of renewable energy into the power eco-system.

450 GW

Target set by the Government for Renewable Energy Capacity by 2030

Government Initiatives

Ujjwal DISCOM Assurance Yojana (UDAY)

Ujjwal DISCOM Assurance Yojana (UDAY) scheme was announced in November 2015. The scheme aimed to financially turnaround and revive electricity distribution companies (DISCOMs) of India with an intent to find a permanent solution to the financial stress that the power distribution sector was facing. While the scheme is optional for the states to join, 32 states and Union Territories have joined the scheme till date.

Major objectives of the UDAY scheme are as follows:

- Reduction of the average technical and commercial loss from around 22% to 15%, along with eliminating the gap between the average cost of supply (ACS) & average realisable revenue (ARR)
- Operational efficiency improvement through compulsory smart metering, up-gradation of transformers, and meters
- Adoption of energy efficiency program like the promotion of energy-efficient LEDs, agricultural pumps, fans and air-conditioners
- Reduction of the power cost, interest burden, and loss of power in the Distribution sector along with improvement of the operational efficiency of DISCOMs for the supply of adequate power at affordable rates
- Attracting the states for their active participation in the scheme by providing incentives to the performing states

[12] NITI Aayog

[13] Press Information Bureau - GOI

On a consolidated basis, 16 states have issued bonds worth ₹2,32,163 Crore, which covers approximately 86.3% of the total debt taken over by them, resulting in a significantly low cost of finance for those DISCOMs.

As a result, Aggregate Technical & Commercial (AT&C) losses reduced to ~19% in FY2019-20 as compared to 20.74% in FY2015-16. States like Himachal Pradesh, Punjab, Karnataka, Telangana, Andhra Pradesh, Kerala & Tamil Nadu have AT&C losses below 15% target while states like UP (~30%), Jharkhand (~34%), Bihar (~34%), J&K (~48%) continue to exhibit high AT&C losses.

Pradhan Mantri Sahaj Bijli Har Ghar Yojana (SAUBHAGYA)

Pradhan Mantri Sahaj Bijli Har Ghar Yojana – 'Saubhagya' was launched by the Hon'ble Prime Minister on 25th September 2017 with a total outlay of ₹16,320 Crore. The Gross Budgetary Support (GBS) for the scheme was pegged at ₹12,320 Crore with primary emphasis on rural households.

Under Saubhagya, free electricity connections will be provided to all households (both APL and low-income families) in the rural areas, and to low-income families in the urban areas. DISCOMs will also organise camps in villages/clusters of villages to facilitate on-the-spot filling up of application forms, including the release of electricity connections to households. Moreover, the DISCOMs/Power Department will also adopt innovative mechanisms through dedicated web-portal/Mobile App for collection/consolidation of application forms in electronic mode, and also capture the process of release of electricity connections.

By January 2020, around 96% of identified rural Indian households have received access to electricity.

Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY)

The Government of India launched the scheme "Deendayal Upadhyaya Gram Jyoti Yojana" focusing on rural electrification in 2015. Under DDUGJY-RE, the Ministry of Power has sanctioned electrification of 1,21,225 un-electrified villages, intensive electrification of 5,92,979 partially electrified villages and provision of free electricity connections to 397.45 lakh BPL rural households. Since its launch in 2014-15, a total of ₹45,174 Crore has been spent by the Government under the scheme.

Smart Metering

In FY2019-20, the Government issued guidelines to all States to convert all existing consumer meters into Smart meters in prepaid mode, which would allow consumers to pay as per their own convenience and consumption requirements, at the same time can bring efficiency in power distribution by arresting high AT&C losses for DISCOMs.

EESL (a joint venture of central PSUs) is pioneering this Smart Meter National Programme to convert around 25 Crore conventional meters into smart meters. By January 2020, more than 9 lakh smart meters have been installed in Uttar Pradesh, Harayana, Bihar, NDMC-Delhi and Andhra Pradesh.

National Electricity Fund (NEF)

The Government of India has approved the NEF (Interest Subsidy) Scheme to promote capital investment in the distribution sector. The scheme aims to provide interest subsidy, linked with reform measures, on the loans taken by public and private power utilities for various capital works under Distribution projects. The scheme applies to the entire country and all the works, except the works covered under R-APDRP projects (to ensure non-duplication and non-overlapping of grant/subsidy towards investment). NEF Scheme has the provision to provide interest subsidy and other charges aggregating to ₹8,466 crore for a period of 14 years on loans availed by distribution utilities in both the public and private sectors.

SHAKTI (Scheme for Harnessing & Allocating Koyla Transparently in India)

The SHAKTI Scheme aims to centralise the process of allocating coal to thermal power plants. The Government has designed a coal linkage policy that allocates coal among different thermal power plants, with the active guidance of State Governments. The policy would provide coal linkages to power plants that lack fuel supply agreements (FSAs) through coal auctions. The new coal linkage policy for power plants will help producers ensure fuel supplies in an organised and efficient manner. According to the policy, power companies will have to get their Power Purchase Agreement (PPAs) amended within 45 days to factor in the lowered cost of coal attained after bids.

Benefits of the Policy:

- Coal available to all power plants transparently and objectively
- Auction is made based on linkage allocations to IPPs thus ensuring cheaper and affordable power for all
- Overcome the stress on account of non-availability of linkages to power projects thus benefiting the Infrastructure and Banking Sector
- PPA holders to reduce the tariff for linkage thus providing the direct benefit of reduced tariff to DISCOMs/consumers

Two rounds of the scheme have been successfully conducted with 40 MnT of coal allocated to over 10 GW of private sector capacities. In late 2019, the Government amended the scheme to allow power producers to sell power (produced from coal procured under fresh SHAKTI auctions) in the short term and merchant markets which is very positive for a large number of power producers especially the stressed ones.

India has made substantial progress in the renewable energy sector on the back of conducive policy environment, government support, steady inflow of capital, and latest technologies.

Renewable Energy Initiatives

Kisan Urja Suraksha evam Utthaan Mahabhiyan (PM-KUSUM)

In order to promote solar-powered irrigation, PM-KUSUM was launched in 2019 to spur the installation of solar pumps and small-scale renewable (0.5-2 MW) plants in rural areas, thereby providing easy water access and financial security to farmers. Under PM-KUSUM, farmers can install solar panels to power water pumps and also sell the excess power generated to DISCOMs. The scheme entails setting-up of about 26 GW of solar capacity by 2022 with a total central financial support of ₹34,422 Crore.

Green Energy Corridor Project

Green Energy Corridor Project aims to facilitate the integration of large scale renewable energy capacity addition in the power grid. Under the Union Budget 2019-20, the Government of India has allocated ₹500 Crore to increase the capacity of the Green Energy Corridor Project along with ₹920 Crore for wind and ₹3,005 Crore for solar power projects. By December 2019, almost 65% of targeted ~9770 ckm lines (for the evacuation of renewable power via Intra-State Transmission System) have been constructed across eight renewable-rich states of Tamil Nadu, Rajasthan, Karnataka, Andhra Pradesh, Maharashtra, Gujarat, Himachal Pradesh, and Madhya Pradesh.

Other Initiatives

- Waiver of inter-state transmission charges and losses for inter-state sale of solar and wind power for projects to be commissioned up to March 2022
- Launch of Phase-II of Grid-connected rooftop solar programme in February 2019, with a target for achieving 40 GW from rooftop solar projects by 2022
- Launch of the Ultra-Mega Renewable Energy Power Parks (UMREPPs) with a plug and play model under the existing Solar Park Scheme, which aims to ease land possession, evacuation, and necessary clearances for establishing Renewable Energy based (solar/wind/hybrid and storage systems) UMPPs
- Renewable cum storage bids have been conducted by MNRE and SECI for "Round the Clock" (RTC) power supply in FY 2019-20, which discovered landmark levelised tariffs of ₹3.5 to 4 per kWh. Going forward this model of RTC renewable power supply is set to gain traction due to advancement in battery and other storage technologies and a steep decline in the cost curve.
- Renewable Purchase Obligation has been prescribed for FY21 and FY22, which will help spur the growth of renewable energy, at the same time decrease power purchase costs for customers

RPO (in %)	FY21	FY22
Solar	8.75	10.50
Non-solar (including Hydro)	10.25	10.50
Total	**19.00**	**21.00**

19%

Renewable Purchase Obligation for FY2020-21

Challenges

India has come a long way since Independence, and the Power sector is not an exception. Just from an annual generation capacity of 1.3 GW in 1947, the country now boasts of a single grid with a generation capacity of ~370 GW as of March 2020. However, even after making remarkable progress over the years, India still faces challenges to meet the growing demand for power as reliable supply remains low in the country.

For FY2019-20, according to the Central Electricity Authority (CEA), the energy deficit was 0.5%, and peak power deficit stood at 0.7%. Yet, the energy deficit is significant in union territories such as Jammu & Kashmir and the North-Eastern States. Also, states like Chhattisgarh, Odisha, and Uttar Pradesh continue to face peak deficit despite having significant energy generation capacity.

Although there has been a significant increase in the power generation capacity, the plant load factor (PLF) has declined significantly from ~78% in FY2009-10 to ~56% in FY2019-20. Private and State-owned power generators have the poorest PLF compared to Central power generators. Low PLF means the thermal plants have been lying idle, which could be due to non-availability of fuel, surplus capacity, or lower off-take.

Key Sector Challenges:

1. Sustainable fuel availability:

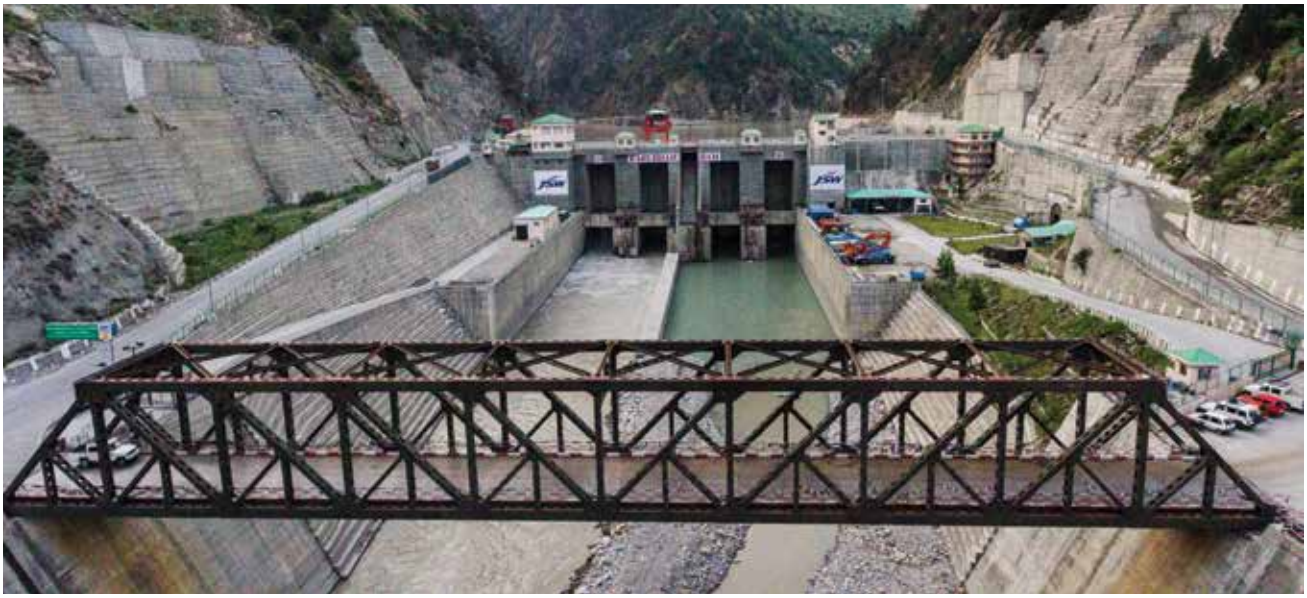
   The availability of coal has been a key reason for stress in the thermal segment. Similarly, many gas-based power plants are also idle due to non-availability. While domestic coal production has fulfilled around 80% of the coal requirement for coal-fired power plants, the remaining requirement has been met by the imports. This has led to an increase in the cost of power production besides causing avoidable foreign exchange resource drain.

2. Financial Health of DISCOMs:

   The distribution companies are the weakest link in the entire power sector value chain. Mounting AT&C losses and operational inefficiencies have affected the financial health of DISCOMs, which are currently plagued with massive outstanding debts. Many DISCOMs are waiting for regulators to liquidate "regulatory assets", as there is an increasing gap between projected and actual revenue recovery. Also, the untimely payments from the bulk users like state departments and local bodies have put additional burden on DISCOMs. While the recent announcement of ₹90,000 Crore liquidity relief package under Atmanirbhar Bharat Abhiyan will help DISCOMs to meet the existing outstanding liabilities towards Generation and Transmission companies, a more defined policy that enables DISCOMs to focus on addressing operational inefficiencies is required for the sustainability of operations in the long term.

3. Last Mile Infrastructure:

   After setting up electricity infrastructure in all the villages, the households in the rural area are given a connection to use a single LED. Connected households must receive sufficient electricity because the size of the benefits of electrification depends on the reliability of the electricity supply. This has the potential to further unlock latent power demand in the country.



4. Transmission:

   Power transmission is critical because the place of power generation and the place of power consumption are invariably located far apart. As per a report by Power Grid Corporation, with an expectation of doubling the electricity demand over the next decade, India's transmission and distribution system will also require significant expansion. The CEA has estimated that ₹2.69 trillion investment is needed to revamp India's transmission infrastructure to set up additional 1.1 lakh (110,00) circuit kilometres by the financial year 2024 in order to manage the annual peak load demand of 225.7 GW and to absorb the increasing share of variable renewable energy in the total electricity mix. It would be imperative for policymakers to ensure that the growth of the power sector does not get compromised due to lack of necessary transmission infrastructure.

Outlook

As per the IMF forecast, India is expected to remain one of the fastest-growing major economies in the world in the near future. With overall socioeconomic development and ambitious plan of electrification of every household, demand for energy is expected to rise consequently. While India's population comprises of ~20% of the global population, the energy consumption is mere ~6% of the world's primary energy consumption. Even though the energy consumption in India has more than doubled since 2000, the potential for further growth in the consumption of energy is therefore significant.

Over the medium term, power sector outlook is sanguine, as rapid urbanisation and stabilisation of various schemes undertaken by the Central Government such as "Power for All" and "24 x 7 Power" is expected to spur the power demand. The Central Electricity Authority (CEA) expects India's electricity requirement (demand plus transmission and distribution losses) to reach 1,566 TWh (peak demand ~226 GW) by FY2021-22 and increase to more than 2,047 TWh in FY2026-27 (peak demand ~299 GW). This would require investment in capacity additions of more than US$ 304 billion.[14]

An efficient transmission and distribution (T&D) system is essential for a stable supply of electricity. To increase the efficiency of the T&D system, innovative products and solutions like smart grids and meters, energy-efficient transformers and switchgear and technology for mapping the network is necessary.

Progress on the resolution of the stressed assets remains slow, with ~10% of the 40 GW stressed coal-based capacity-achieving resolution. This is because of the long lead time to achieve a sustainable resolution, limited progress in signing of new long-term PPAs and low thermal PLF number. With a lack of visibility on long term PPA and Covid-19 related disruptions, resolution of stressed power assets is expected to take longer than earlier.

The lockdown announced by the Government of India to control the spread of Covid-19 has resulted in the standstill of most industrial and commercial enterprises resulting in a severe impact on the demand for electricity. These sectors also contribute to the bulk of revenue to DISCOMs. As per ICRA, the lockdown is likely to result in power demand de-growth by 20-25% on a YoY basis during the lockdown period. This fall in

With overall socioeconomic development and ambitious plan of electrification of every household, demand for energy is expected to rise consequently.

[14] CEA, 2018

electricity demand would, in turn, impact the revenue, cash collection efficiency and the profitability of the power distribution companies, affecting the liquidity profile of the DISCOMs. In this situation, the ₹90,000 Crore liquidity infusion package announced under the Atmanirbhar Bharat Abhiyaan would immensely help the DISCOMs, aiding power demand revival and improvement in the overall health of the sector going forward.

On the supply side, incremental capacity additions have been driven largely by the Renewable Energy segment over the last few years. Technological advances and reducing capital costs have progressively made Renewable Energy commercially attractive and more affordable than Thermal power. Henceforth, power capacity addition in India is expected to be primarily driven by the Renewable Energy segment.

COMPANY OVERVIEW

JSW Energy is the energy vertical of the $12 billion JSW Group. We are amongst India's leading private sector power companies and have grown steadily and strongly through the years by managing operations efficiently, enhancing social and economic benefits, minimising environmental impact and employing cutting-edge innovation.

JSW Energy has one of the strongest balance sheets in the Indian Power sector, which is the result of financial prudence and judicious business decisions.

The Company began its commercial operations in 2000, with the commissioning of its first 2x130 MW thermal power plant at Vijayanagar, Karnataka. Since then, we have steadily enhanced our power generation capacity from 260 MW to 4,559 MW, having a portfolio of 3,158 MW in thermal power, 1,391 MW in hydropower, and 10 MW in solar power. Moreover, we are now spread across several Indian states and have stakes in natural resource companies both in India and South Africa. With this, we have ensured diversity in geographic presence, fuel sources and power take-off arrangements, thereby de-risking our business.

JSW Energy has one of the strongest balance sheets in the Indian Power sector, which is the result of financial prudence and judicious business decisions taken when faced with challenges or cyclical bursts of opportunities. Thus, while many companies in the power sector are facing financial challenges, JSW Energy, with consolidated Net Debt to Equity ratio of 0.77x, has the financial headroom to continue in its growth journey, even in adverse macroeconomic conditions.

Our operating performance has time and again reiterated the strength of our business model as we have continuously improved our operational efficiencies by following global best practices to be one of the lowest O&M cost power generators in the industry.

During the year, we continued on our mission to energise India from the forefront, by adopting global best practices and further strengthening our operations, thereby leading to healthy financial performance. Going forward, we aim to march towards our mission of achieving 10 GW operational capacity by expanding our footprint primarily in the Renewable Energy space, in a deliberate yet calibrated manner through both organic and inorganic means.

Key Highlights during the year

1. Debt Restructuring Agreement with Jaiprakash Power Ventures Limited (JPVL)

   During the year, the Company entered into a Debt Resolution agreement with JPVL to restructure the principal

outstanding amount of ₹751.77 Crore owed by JPVL. In terms of the agreement, an amount of ₹351.77 Crore was converted into ~5% equity stake in JPVL. Out of the balance principal amount of ₹400 Crore, ₹280 Crore was written off while ₹120 Crore continues as debt to be paid by JPVL to the Company, out of the available cash flows after JPVL has paid 10% of the re-structured sustainable debt to its secured lenders. Further, both parties have agreed to forego their respective rights and obligations in relation to the Securities Purchase Agreement for transfer of Karcham and Baspa hydro assets.

2. Acquisition of GMR Kamalanga Energy Limited

   As part of the Company's strategy for expansion and consolidation, the Company has signed a Share Purchase Agreement with GMR Energy Limited for acquiring 100% shares of its subsidiary GMR Kamalanga Energy Limited (GKEL) which owns and operates a 1050 MW (3 X 350 MW) thermal power plant in Odisha. The transaction contemplates a payout of consideration of ₹5,321 Crore for acquisition of 100% stake of GKEL (subject to working capital and other adjustments). The transaction has been put on hold given the ongoing uncertainty of Covid - 19 and will be revisited once the situation normalises.

3. Acquisition of Ind-Barath Energy (Utkal) Limited

   During the year, the Company received a Letter of Intent pursuant to the approval of its Resolution Plan from Committee of Creditors of Ind-Barath Energy (Utkal) Limited, which owns a 700 MW (2x350 MW) power plant in Odisha. Subsequent approval by the National Company Law Tribunal for the same is under process.

OPERATIONAL REVIEW

The Company's net generation in FY2019-20 stood at 21,252 MUs vis-à-vis 22,088 MUs in the previous year. It generated a total income of ₹8,560 Crore in the current financial year compared to ₹9,506 Crore in the previous year. The deemed PLF was 66.01% for FY2019-20 as against 65.18% for FY2018-19.

Plant-wise PLF and Net Generation

Plant	FY2018-19		FY2019-20	
	PLF (%)	Net Generation (MUs)	PLF (%)	Net Generation (MUs)
Vijayanagar	50.42	3,511	39 .64	2,758
Ratnagiri	# 79.32	7,353	# 84.95	7,193
Barmer	# 84.28	6,017	#82.34	5,277
Sholtu	46.05	5,204	52.54	5,953
Nandyal	-	-	# 90.60	58
Nandyal-Solar	# 19.69	3	# 18.42	8
Salboni-Solar	# 19.21	1	#18.69	5
Total		**22,088**		**21,252**

 # Deemed PLF

21,252 MUs

Net Generation
FY2019-20

Operational Performance during FY2020

THERMAL POWER PLANTS

Vijayanagar

PLF: The plant comprises two Separate Business Units (SBUs) – SBU 1 and SBU 2. In FY2019-20, the plant achieved an average actual PLF of 39.64% as against 50.42% in the previous fiscal year

Total Gross Power Generated: 2,994 million units

Net Power Generated: 2,758 million units

Power Sales: Long-term sales to JSW Steel Limited, JSW Cement Limited, JSW Paints limited under power purchase agreements (PPA), and short-term/merchant sales to distribution companies and on power exchanges in India

Key Strengths of the Plant:

- It is located in the southern region of India, which has traditionally seen a higher demand for power
- It is an operationally strong plant leading to high fuel efficiency, lower O&M cost and higher PLF efficiency
- Provision to blend up to 50% of domestic coal with imported coal increases operational flexibility

Ratnagiri

PLF: In FY2019-20, the plant operated at an average deemed PLF of 84.95% as against 79.32% in the previous year

Total Gross Power Generated: 7,869 million units

Net Power Generated: 7,193 million units

Power Sales: Long-term sales to Group captive consumers, Maharashtra State Electricity Distribution Company Limited (MSEDCL) and other third-party industrial consumers under PPA. Short-term/merchant sales to distribution companies and on power exchanges in India

Key Strengths of the Plant

- It is located near the Jaigad port, which helps in coal transportation cost savings
- As nearly 52% of the capacity has been tied up with Group Captive consumers, the recovery of its fixed cost is ensured along with ROE to that extent
- Provision to blend up to 50% of domestic coal with imported coal increases operational flexibility

Barmer

PLF: In FY2019-20, the plant achieved an average deemed PLF of 82.34% as against 84.28% achieved in FY2018-19 respectively

Total Gross Power Generated: 5,875 million units

Net Power Generated: 5,277 million units

Power Sales: To Rajasthan DISCOMs

Key Strengths of the Plant:

- The plant has assured availability of fuel (lignite) which is sourced from pit-head captive lignite mines under a Fuel Supply Agreement
- It has a long-term PPA with DISCOMs for full capacity, ensuring full recovery of the fuel cost and fixed cost, including ROE

HYDRO POWER PLANTS

Baspa-II

PLF: The plant achieved an average PLF of 51.36% for FY2019-20 as against 48.54% in the previous year

Total net power generated after aux consumption: 1,338 million units

Power sales: To Himachal Pradesh State Electricity Board (HPSEB)

Key Strengths of the Plant: The plant has 100% capacity tied up under long-term PPA with HPSEB, ensuring full recovery of fixed cost, including

Karcham Wangtoo

PLF: The plant achieved an average PLF of 52.90% for FY2019-20 as against 45.30% in the previous year

Total net power generated after aux consumption: 4,615 million units

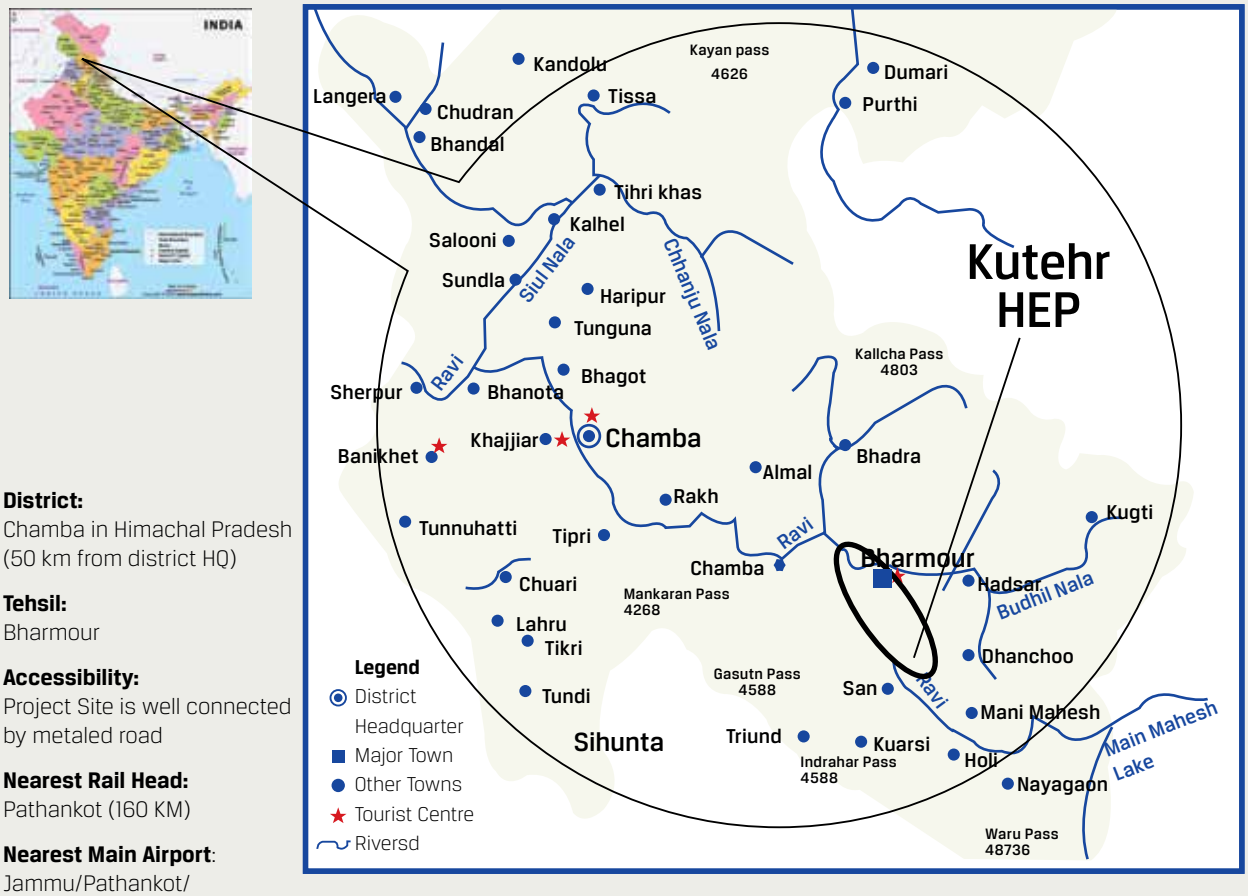
Power sales: Uttar Pradesh, Rajasthan, Haryana, and Punjab DISCOMs through long-term PPA with PTC India Limited

Key strengths of the plant: The plant has 100% capacity tied up under long-term PPA with various DISCOMs through PTC India Limited ensuring full recovery of fixed cost, including ROE under the Central Electricity Regulatory Commission (CERC) regulations

Kutehr Hydroelectric Project

JSW Energy (Kutehr) Limited JSW Hydro Energy Limited (JSWHEL), is a wholly-owned subsidiary of JSWHEL, set up for the purpose of implementing the 240 MW Kutehr Hydro-electric Project (3x80 MW Kutehr HEP) located in the upper reaches of Ravi Basin in district Chamba of Himachal Pradesh. During the year, JSWEKL resumed preparatory construction / developmental activities for this 240 MW hydropower project in October 2019 with all the major works having been awarded.

Project Location - Kutehr HEP



District:
Chamba in Himachal Pradesh (50 km from district HQ)

Tehsil:
Bharmour

Accessibility:
Project Site is well connected by metaled road

Nearest Rail Head:
Pathankot (160 KM)

Nearest Main Airport:
Jammu/Pathankot/ Dharamshala

SOLAR POWER PLANTS

JSW Energy has set a vision of becoming a 10 GW company over the foreseeable future with incremental capacity additions coming predominantly from the Renewable Energy space. As a stepping stone towards that and to get familiarity with vendor and technology eco-systems, JSW Energy has set up 10 MW solar power plants at different locations in the country spread across Rajasthan, Andhra Pradesh, Maharashtra and West Bengal.

FINANCIAL REVIEW

Standalone Financial Performance

Revenue from Operations

(₹Crore)

Parameters	FY 2019	FY 2020	% change
Sale of Power	4,884.38	4,044.00	(17)
Interest Income on assets under finance lease	61.32	68.73	12
Sale of Services	169.58	185.27	9
Other Operating Revenue	3.05	15.99	424
Total	**5,118.33**	**4,313.99**	**(16)**

In FY2020, the sale of power reduced to ₹4,044.00 Crore from ₹4884.38 Crore in the previous year, due to lower volumes and lower realisations. The finance lease income increased from ₹61.32 Crore to ₹68.73 Crore due to addition of 18MW Thermal Power Plant at Nandyal under a finance lease. Revenue from the sale of services increased from ₹169.58 Crore in FY2019 to ₹185.27 Crore in FY2020, due to higher operator fees realised from O&M services.

Other Income

(₹Crore)

Parameters	FY 2019	FY 2020	% change
Interest Income	274.21	143.04	(48)
Dividend Income from Long-term Investments	32.59	28.72	(12)
Net Gain on Sale of Current Investments	4.48	7.46	67
Other Non-operating Income	51.50	18.68	(64)
Total	**362.78**	**197.90**	**(45)**

Other income reduced in the current fiscal, primarily on account of lower interest, dividend income and other non-operating income.

₹ 4,313.99 Crore

Revenue from Operations (Standalone) FY2020

Cost of Fuel

(₹Crore)

Parameters	FY 2019	FY 2020	% change
Cost of Fuel	3,959.67	3,074.40	(22)

Fuel cost is reduced by 22% in comparison to the previous year due to lower international price of coal and lower generation.

Expenses

(₹Crore)

Parameters	FY 2019	FY 2020	% change
Employee Benefit Expense	130.84	118.71	(9)
Finance Costs	411.79	321.95	(22)
Depreciation and Amortisation Expense	365.02	369.27	1
Other Expenses	209.44	226.71	8

Employee Benefit Expense is lower on a y-o-y basis due to a reduction in overall headcount. The Company has been able to reduce finance costs due to a net reduction in borrowings.

The EBITDA before exceptional items marginally declined to ₹1,092.07 Crore in FY2020 from ₹1167.09 Crore in the previous year. The Company's standalone PAT improved to ₹497.81 Crore in FY2020 vis-à-vis a PAT of ₹251.45 Crore in FY2019.

EBITDA and Profit after Tax (PAT)

(₹Crore)

Parameters	FY 2019	FY 2020	% change
EBITDA before Exceptional items	1,167.09	1,092.07	(6)
Profit after tax	251.45	497.81	98

We have ensured diversity in geographic presence, fuel sources and power take-off arrangements, thereby de-risking our business.

Ratios

	FY2018-19	FY2019-20	%Change	Variances due to
Debtors Turnover (no of days)	37	56	51	Increase was primarily on account of decrease in turnover and increase in debtors
Inventory Turnover (no of days)	28	37	32	Decrease in turnover and increase in inventory lead to increase in inventory turnover days
Interest Coverage Ratio	1.95	2.25	15	
Current Ratio	0.53	1.01	91	Increase was primarily on account of increase in current assets (mainly increase in inventory, debtors, current investments, loans and other financial assets) and decrease in Current liabilities (mainly decrease in trade payables).
Debt Equity Ratio	0.28	0.24	(14)	
Operating Profit Margin (%)	15.67	16.75	7	
Net Profit Margin (%)	4.91	11.54	135	Higher profit margin attributable to increase in gross contribution margin and benefits due to write-back of deferred tax liability in FY2020
Return on Equity (%)	2.47	5.30	114	Improvement due to higher PAT driven by increase in gross contribution margin and benefits due to write-back of deferred tax liability in FY2020

Consolidated Financial Performance

The Company's total Income from operations decreased by 9% and stood at ₹8272.71 Crore as against ₹9,137.59 Crore in the previous year. The Company earned an EBITDA (before exceptional items) of ₹3,243.84 Crore, up by ₹22.75 Crore over the previous year. The Company earned a Consolidated Profit of ₹1099.92 Crore during the year as against ₹695.13 Crore in the previous year. Its Total Comprehensive Income for the year stood at ₹11.74 Crore as against ₹707.15 Crore in the previous year. The Consolidated Net Worth and Consolidated Net Debt as on March 31, 2020, were ₹11,645.62 Crore and ₹8,944.55 Crore, respectively resulting in a Net Debt to Equity ratio of 0.77 times.

Income & Expense (Consolidated)

(₹Crore)

Parameters	FY 2019	FY 2020	% change
Revenue from Operations	9,137.59	8,272.71	(9)
Other Income	367.97	286.98	(22)
Fuel Cost	5,356.22	4,460.51	(17)
Purchase of Power	78.50	37.75	(52)
Employee Benefits Expense	243.58	242.96	Negligible
Finance Costs	1,192.40	1,051.07	(12)
Depreciation and Amortisation Expense	1,163.69	1,168.05	Negligible
Other Expenses	606.17	574.63	(5)

EBITDA and Profit after Tax (PAT)

(₹Crore)

Parameters	FY 2019	FY 2020	% change
EBITDA before Exceptional items	3,221.09	3,243.84	1
Profit for the year	695.13	1,099.92	58
Other Comprehensive Income	12.02	(1,088.18)	NM
Total Comprehensive Income	707.15	11.74	(98)

FUTURE GROWTH STRATEGIES

With the significant impetus of the Government on the development of renewable energy, the Company firmly believes that the Renewable Energy segment would be the prime technological driver for India's future energy goals. To achieve its mission for becoming a sustainable and environmentally friendly enterprise, the Renewable Energy segment would be the locus of our growth plans.

The Company envisages the growth of its current capacity to 10,000 MW over the foreseeable future, with most of the new capacities targeted in the Renewable Energy space, comprising of solar, wind and hydro based power projects through a mix of organic and inorganic opportunities in the generation segment of the power industry. The Indian Power sector is going through a phase of consolidation with multiple opportunities available in the renewable energy space at attractive project economics. The Company, with its robust balance sheet and proven operating and project execution expertise, aims to leverage these opportunities for value-accretive growth.

RISK MANAGEMENT & MITIGATION

JSW Energy follows the globally recognised Committee of Sponsoring Organisations (COSO) framework of Enterprise Risk Management to identify, classify, communicate, respond to risks and opportunities based on probability, frequency, impact, exposure and resultant vulnerability.

The Company recognises that all emerging and identified risks need to be managed and mitigated to:

1. Protect its shareholders' and other stakeholders' interests
2. Achieve its business objective
3. Enable sustainable growth

Pursuant to the requirement of Regulation 21 of the Securities and Exchange Board of India (Listing Obligations and Disclosure Requirements) Regulations, 2015 and Companies Act, 2013, the Company has constituted a sub-committee of Directors called the Risk Management Committee to oversee the Enterprise Risk Management framework.

The Company envisages the growth of its current capacity to 10 GW over the foreseeable future, with most of the new capacities targeted in the Renewable Energy space.

Key Risks & Response Strategies

Type of Risk	Risk Movement	Impact	Response Strategies
Coronavirus pandemic	New risk	The spread of Covid-19 across the World and in India has impacted businesses globally. The pandemic has posed risks to • Human life • Low power demand due to national lockdown • Disruption of supply chain	The Company has taken proactive actions to reduce the impact of the Covid-19 pandemic. • Human life - Apex committee at Group level to monitor the situation and issue guidelines; - Strict adherence to guidelines issues by various Government authorities; - Travel restrictions to affected countries; - Creating awareness amongst employees about hygiene; - Scaling down of staff at plants and providing work from home facility; - Body temperature screening of employees before entering offices/ plants; - No entry to Visitors; - Staggered and extended timings for canteens and public areas; - Closing down of facilities like garden, gyms in townships • Low power demand - The drop in power demand is a short term scenario. The demand is expected to normalise once the lockdown is over and normal course of business resumes • Disruption in supply chain - The Company has adequate stock of coal and oil for plant start-up, critical spares and water. This has helped in ensuring the smooth functioning of the plant during the lockdown - Alternate supply chain sources explored to mitigate the impact of prolonged disruption
Off-take risk	⟷	At present, less than 20% of power is untied and being sold on a day-ahead/short term basis. Demand-supply dynamics, economic growth, and sudden shifts in weather impact tariff rates,	• Focus on enhancing power sales through long term PPAs, including under the captive route • Focus on ensuring an optimum mix of short/medium term power purchase arrangements for the open capacity
Raw material availability & cost	↓	Availability and cost of the required grade of raw material (coal/lignite) are impacted by: - 1. The global movement and parity of landed cost – considering the price, freight, tariff and exchange rates 2. Domestic demand, supply gap, constraints and vendor actions 3. Policies on mining, allocation and tariff The imported coal prices are moving downwards since February 2020 due to lower demand owing to Covid-19 pandemic	• Take benefit of the soft imported coal prices expected to continue till Quarter-3 of FY2020-21 amidst the global slowdown • Broaden the sources (countries/vendors) and employ prudent hedging strategies to mitigate foreign exchange and coal price risks, which can affect the cost of coal • Use various contract options like long term contracts and monthly/quarterly/spot contracts for cost-effectiveness • Blend domestic coal by participating in coal e-auctions for Independent Power Producers (IPPs) & Captive Power Producers (CPPs)

Type of Risk	Risk Movement	Impact	Response Strategies
Regulatory changes		Revised norms for SOx/ NOx/SPM emissions leading to higher CAPEX for Environmental compliance	• Technical evaluations of vendors have been conducted for necessary modifications in different types of equipment such as boilers, Electrostatic Precipitators (ESPs) • Meanwhile, an extension of compliance time post-Covid-19 is being sought through various forums due to poor response from equipment vendors • Ensure that for long term PPA customers, the CAPEX cost for meeting environmental norm is a pass-through
Cybersecurity		Cybersecurity risk could result in a substantial reputation and financial loss arising from: • Theft of corporate information • Theft of financial information (such as financial results, bank details) • Ransomware - cyber extortion • Unauthorised transactions • Loss of business or contract • Disruption to business (such as inability to carry out SAP transactions, online payments, etc.)	• Periodically assess the current state and prioritise the foundational components of cybersecurity • Conduct periodic audits of security systems and procedures • Develop new capabilities, technologies and processes to combat cyber-threats • Incorporating cybersecurity and privacy into everyday business decisions and processes (like Information Security Awareness Programme) • Assess readiness to adopt advanced technologies in the Information Security domain • Monitor threats and respond, investigate and remediate cybersecurity-related incidents and data breaches
Recovery of dues from DISCOMs		• Our Barmer, Ratnagiri & Himachal units have PPAs with DISCOMs • Due to poor financial health, payments from the DISCOMs against our power supply may get delayed thereby impacting working capital/cash flow • The Covid-19 crisis is likely to further impact the financial position of the DISCOMs further exacerbating the recovery of dues	• Regular and proactive follow-up with the DISCOMs • Seek indirect benefit under ₹90,000 Crore liquidity infusion package announced under the Atmanirbhar Bharat Abhiyaan to enable DISCOMs to clear their outstanding dues
Ageing of Plant & Machinery		As the plants get older, the risk of wear and tear impacts: • Plant availability • Likely higher maintenance Capital Expenditure and operational expenditure	• Regularly monitor and adopt preventive maintenance • Ensure strict adherence to maintenance schedule as recommended by OEM/ industry practice • Maintain adequate stock of critical spares

HUMAN RESOURCE (HR) MANAGEMENT

HR plays the role of strategic business partner by driving Organisational Objectives of growth, agility and increased productivity. FY2020 witnessed continued sustenance of the various HR initiatives taken in previous years as well as the introduction of new HR initiatives. In order to create superior employee experience, HR team developed and deployed a new model named CARE, covering, through its four elements of Communication, Agility, Responsibility and Elevation, all aspects of an engaging workplace to drive business objectives.

Under the CARE model, the following HR interventions were conducted in FY 2020:

1. Communication: To bring alignment among employees towards organisational goals and create transparency in communications, management connected with the employees at regular intervals through forums like Samwaad involving two-way communication with employees, townhalls, skip level meetings and family get-togethers. BOLT, our quarterly in-house magazine, was also published during the year. C - Live, a quarterly forum where the Chief Operating Officer shared Industry updates, Company scenario and future plans in an interactive session involving live questions from the employees through a web-telecast went live in FY2019-20.

We are progressing on the journey of sustainable growth to achieve our objectives and foster the culture of "Better Everyday".

2. Agility: To build organisation and employee capability, JSW Energy continued with Future Fit Leaders, our flagship leadership development program to develop talent within the organisation. Eight employees were selected for development journey through Future Fit Leaders program in FY2019-20 at top institutions like Cornell University (USA), IIM (Bangalore), Indian School of Business (Hyderabad) and IIM (Ahmedabad). To promote diversity and develop diverse talent, two female employees were selected for a development program at IIM Bangalore as part of the Springboard initiative. A number of training programs were organised in functional, behavioural, technical, safety and TQM related areas. Further, to develop internal talent for upcoming growth opportunities in new business verticals, a new program involving Diploma in Solar was started during the year.

   Under the Umang banner, team-based games and contests were conducted throughout the year across the locations to build networks at the workplace. "Lose For the Gain", an employee engagement initiative to increase cross-functional interaction among diverse teams to build agility in the system was conceived and launched for all JSW Energy employees. This initiative promotes focus on the importance of physical well-being by incentivising the teams to achieve the desired BMI range through team activities like running together, exercising together, eating healthy food together. A total of 170 teams participated in this initiative.

3. Responsibility: We believe in involving employees in the execution of business strategies through problem-solving initiatives. IGNITE, the digital platform for logging ideas, projects and Sujhaav was launched in FY2019-20. Training programs on "Problem Solving Techniques" were organised across the locations to build employee capability to provide innovative solutions by using problem-solving tools and techniques.

   HR team played a key role in facilitating strategy formulation whereby a Leadership Workshop was conducted to define organisational goals for the next five

years resulting in Mission 10Gigawatt under which, to build a culture of agility and improve Employee Engagement score, various HR initiatives were launched. In a planned approach, dipsticks were conducted in-line with the engagement survey scores. Based on the inputs from the dipstick, "Connect workshops" were conducted to promote collaboration at the workplace and "Lead with conversations" workshops for managers were conducted to nurture trust-based relationships between the managers and their subordinates.

4. Elevation: To enhance employee morale and ownership, we recognised our employees for their constant contribution to the organisation. Employees were felicitated for their long association with the organisation through LAMHE awards. Similarly, to drive ownership among employees, Kaizen awards and employee of the month awards were given to the employees.

TOTAL QUALITY MANAGEMENT (TQM)

JSW Energy is progressing on the journey of sustainable growth to achieve the objectives and live the culture of "Better Everyday". For this, we have marched on the path of Total Quality Management (TQM) and have imbibed it as business culture and a vehicle to improve business performance.

JSW teams underwent management diagnosis conducted by JUSE examiners in August 2019 and cleared the first milestone of the Deming challenge journey of TQM, showcasing the TQM management practices in generation plants and improvement in various projects. The Company is building a culture of continuous improvement and preparing the organisation for sustainable growth with "TQM for Business" while working on the inputs received during the TQM diagnosis.

The organisational capability is being strengthened by training, development and implementation of quality tools for business improvements, and the employees are participating in regional and national quality competitions. In FY2019-20, JSW QC teams participated in Chapter Convention on Quality Concepts (regional), and National Convention on Quality Concepts (national) organised by Quality Circle Forum of India and won 37 quality awards, special awards and rolling trophies for best propagation, models, quiz, poster and slogans categories of quality promotion.

CORPORATE SOCIAL RESPONSIBILITY

JSW Energy strongly believes in inclusive growth to facilitate equal social and economic opportunities to communities. The Company carries out social development activities through JSW Foundation, the social development arm of the JSW Group. Through the Foundation, the Company aims to provide the right opportunities to communities for holistic and inclusive development, striving towards creating a value-based and empowered society through continuous and purposeful engagement with the local communities. With the support from the Foundation, the Company works towards eradicating poverty and hunger, tackling malnutrition, promoting social development, addressing social inequalities by empowering the vulnerable sections of the society, addressing environmental issues, preserving national heritage and promoting sports training.

1,677

Total Permanent Employees
FY2019-20

On the CSR front, JSW Energy is committed to:

- Allocating at least 2% of its average net profit of the Company for the last three financial years' towards CSR interventions as per the categories specified in the Companies Act, 2013
- Identifying and addressing community needs and perceptions through stakeholders engagement
- Focusing on women empowerment through a process of social inclusion
- Creating a transparent and accountable system for social development
- Spreading the culture of volunteerism through the process of social engagement

CSR Framework

JSW Foundation supports, plans and executes JSW Energy's CSR interventions, which is administered by a committee appointed by the Board named CSR Committee. All the CSR initiatives are approved by the Committee and reviewed periodically at different levels in line with the Company's CSR Policy.

JSW Energy is cognizant of the importance of synergy and interdependence at various levels throughout the organisation. It has, therefore adopted a number of intervention strategies to optimise community and individual growth in a sustainable manner. The strategies adopted in this regard are as follows:

- Priority is given to the villages in the immediate vicinity of the plant location, defined as Direct Influence Zone (DIZ). The policy enables plants to define their own DIZ with the provision that this could be expanded as per the scale of operations. However, certain programmes might be expanded beyond this geographical purview (Indirect Influence Zone or IIZ).
- All programmes are designed based on the need assessment using different quantitative and qualitative methods leading to measurable impact. The programmes are implemented through the Foundation either directly/ through the Foundation or in partnership with the government and civil society groups at various levels.
- Social mobilisation, advocacy at various levels, and/or appropriate policy changes form part of the interventions in each sector.

Please refer to Annexure B to the Board's Report for the Annual Report on the CSR activities and for further details of the CSR initiatives undertaken by the Company during FY 2019-20.

INTERNAL CONTROLS

The Company has a robust system of Internal Controls, commensurate with the size and nature of its business and complexity of its processes. Internal Control systems are an integral part of JSW Energy's Corporate Governance structure. Some salient features of the Internal Control system are:

- Preparation of annual budgets and its regular monitoring
- Control over transaction processing and ensuring the integrity of the accounting system by the deployment of an integrated ERP system
- Adequate documentation of policies, guidelines, authority and approval procedures covering all the important functions of the Company
- Deployment of compliance tools to ensure compliance with laws, regulations and standards
- Ensuring reliability of financial information by testing of internal financial controls over-reporting by internal auditors and statutory auditors
- Adequate insurance of Company's assets/resources to protect against any loss
- A comprehensive Information Security Policy and continuous updation of IT systems

The Internal Control systems and procedures are designed to assist in the identification and management of risks, procedure-led verification of all compliances as well as an enhanced control consciousness. The Audit Committee of the Board of Directors, comprising Independent Directors, regularly reviews the adequacy of Internal Controls and compliance with Accounting Standards.

INTERNAL AUDIT

JSW Energy has an integral Internal Audit function that inculcates the best global standards and practices of international majors into its operations. The Company has a strong Internal Audit Department that reports to the Audit Committee comprising Independent Directors who are experts in their respective fields. The Company successfully integrated the COSO framework with its audit process to enhance the quality of its financial reporting compatible with business ethics, effective controls and governance. The Company extensively practices delegation of authority across its team, which creates effective checks and balances within the system to identify and correct all possible gaps. The Internal Audit team has access to all information in the organisation facilitated by the ERP implementation across the organisation.

The Internal Audit Department prepares risk-based audit plans whereby the frequency of audit is decided based on the risk ratings of the respective areas/functions. The audit plan is approved by the Audit Committee and executed by the Internal Audit team. It is reviewed periodically to include areas that have assumed significance in line with emerging industry trends and growth of the Company. In addition, the Audit Committee also places reliance on internal customer feedback and other external events for the inclusion of additional areas into the audit plan besides regularly reviewing significant Internal Audit findings.

100% closure

of reported unsafe situations at the site

INTERNAL FINANCIAL CONTROLS

As per Section 134(5)(e) of the Companies Act 2013, the Directors have overall responsibility for ensuring that the Company has implemented a robust system and framework of Internal Financial Controls. The Company had already developed and implemented a framework for ensuring Internal Controls over Financial Reporting. This framework includes entity-level policies, processes controls, IT General Controls and Standard Operating Procedures (SOP).

The entity-level policies include anti-fraud policies (such as code of conduct, conflict of interest, confidentiality and whistleblower policy) and other policies (such as organisation structure, insider trading policy, HR policy, IT security policy, treasury policy and business continuity and disaster recovery plan). The Company has also prepared a risk control matrix for each of its processes such as procure to pay, order to cash, hire to retire, treasury, fixed assets, inventory and manufacturing operations. These Internal Financial Controls are reviewed by the Internal and Statutory Auditors every year.

The Company regularly carries out an evaluation of the design and effectiveness of these controls and have not noted any significant material weaknesses or deficiencies, which can impact the financial reports.

EMPLOYEE SAFETY

The Safety Excellence Journey of JSW Energy is progressing at a good pace at all Energy locations. In the last year and a half Safety systems and procedures, as advised by DuPont Consultants have been established at all four energy locations. A systematic safety organisation structure is now in place having seven sub-committees and 3 or 4 DIC's (divisional implementation committees) to report, analyse and mitigate the unsafe situations at the site. For recording the unsafe acts & unsafe conditions, we have now introduced a new application developed by 'mySetu 'team - a software company specialising in customised safety applications. Safety observations for Unsafe acts and unsafe conditions are now well understood and being captured by all locations.

Safety is reviewed by the Board as an important part of the Operations and a review is done every quarter. The organisation's Director & COO has been designated as the "Safety Champion" who reviews the safety performance with all locations on a monthly basis through the Safety Steering Committee meeting.

Further, in the last few months, a lot of focus is given to the implementation of the following safety systems –

Contractor Safety Management – This safety effort aims to build the safety capability of the contractors working in JSW. The JSW team handholds to a contractor to make them aware of the JSW safety systems, policies & procedures and pushes them build the same capability through the adoption of safety policies, procedures and adequate training for all their employees. Once the safety systems are adopted & implemented, and all the workers trained, the contractor employees themselves become proactive towards their safety and safety of their colleagues as well, thus leading to a safe workplace.

Barrier Health Management – This is a very effective system to reduce the level of risk at the workplace. Here, through a brainstorming session, the top risks are identified, which

may lead to multiple fatalities. These risks are then ranked through a ranking system based on the severity & probability of occurrence. Then top 5 risks scenarios are picked up and preventive systems (barriers) existing, and new are identified. The existing barriers are strengthened while the new barriers are installed at the site so that the probability of occurrence of the identified risk is brought down to minimal possible.

Having regular training, cross-location safety audits, monthly reviews of the safety performance of the safety committees and DIC's at the corporate level will be needed to sustain this momentum. Thus with the implementation of the audit feedback, training and continuous management focus JSW Energy shall aim to be a "Zero Incident" organisation.

Health & Safety – Compliance

Every plant at JSW Energy undergoes a strict internal Health & safety Audit lasting 2-3 days every year. The Internal safety Audit is done by Safety Heads + Safety Trained personnel of other locations. All aspects related to safety compliance as per legal requirements as well as the stringent safety systems established by the JSW management are thoroughly reviewed. All gaps, as per the safety closing report, are then closed by the plant teams.

Similarly, external safety audit by reputed and authorised agencies is conducted at all power plants as per the legal requirement. National Safety Council, British Safety Council etc. are few agencies that have conducted external safety audits at our plant locations.

Health & Safety - Interaction between management & workers

In the first week of every month, a mass toolbox talk is held with the workers of the plant by the plant management team. Often a senior official of Vice-President or above level, from the Corporate office, is present during this talk. Importance of safety at the workplace is discussed, and Safety rewards to Workers and Employees, based on monthly performance, are also handed out by the management. Safety oath is also taken by all present during this Toolbox talk.

Safety performance linked to monetary incentives

The Variable pay incentive for all the Senior Management Team and the middle management team has now been linked to individual safety performance. All management employees have to mandatory include at least two safety KRA's which are hooked to their variable pay. For the senior management, 20% of the variable pay and for the middle management, 15% of the variable pay disbursement is according to their individual safety KRA performance.

Worker training on Safety

All contractual employees have undergone a mandatory minimum one-day safety induction training every year. O&M Contractors categorised for high-risk work have to undergo an initial five-day safety training. Apart from this, special safety training equipment is utilised to provide training to relevant workers in areas like - Working at Height, Confined space entry, Fire safety at all our plant locations. These trainings happen every month for the benefit of workers and their safety skills enhancement.

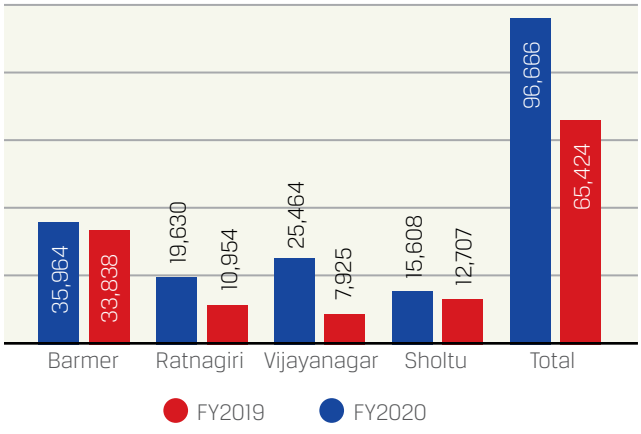
Safety Performance

JSW Energy Sites Total (JSW Employees + Associates+Contractors)	Lost time injury (LTI)	LTIFR	Fatal
	FY 19-20		
Vijayanagar	2	0.77	0
Barmer	1	0.33	0
Ratnagiri	0	0	0
Sholtu	0	0	0
Total - JSW Energy	**3**	**0.26**	**0**

The Covid-19 pandemic has affected the working of all our plants, but yet again, the resilience of the employees has kept all the plants running albeit to lower demands. During these unprecedented times, the employees and associates have shown great courage & restraint by adhering to the Safety guidelines issued by the management for the prevention of the pandemic in any of the JSW Energy plants. Few of the important actions followed at all plants are

- Only Operation persons in the plant, others are allowed to work from home.
- Manual attendance system for employees and associated employees. Bio-metric stopped.
- 100% thermal scanning on entrance gate for every person entering.
- Provided Nose mask to all employees and associate employees.
- Social Distancing in plant and canteen.
- Tracking of all employees and associates for outstation duties.
- All official outstation duties are restricted/Stopped.
- Allowing only necessary transport to run the operational activities smoothly.
- Sanitisers made available at main entry locations and Dettol soaps are provided.

Number of Safety Observations Reported & Corrected FY2020 vs FY2019



The safety observations and the corrections of the unsafe situations & behaviours at the site have played a major role here. The definitive increase in the implementation of the Safety Observations at all our plants is depicted in the bar chart above. Overall there is a 47% increase in the reporting of the Safety observations and a 100% closure of these unsafe situations at the site provides for a safer work environment.